

WHAT IS CLAIMED IS:

1. An exposure apparatus that transfers a pattern of a master onto a substrate using light emitted from a light source, comprising:

a photoelectric sensor arranged at a predetermined position to control exposure of the substrate;

a memory that stores an output variation characteristic of said photoelectric sensor with respect to a quantity of light with which said photoelectric sensor is irradiated;

a calculator that calculates an output variation amount of said photoelectric sensor on the basis of the quantity of the light with which said photoelectric sensor is irradiated, energy per unit time of the light, and the output variation characteristic stored in said memory; and

a compensator that corrects an output from said photoelectric sensor on the basis of the output variation amount calculated by said calculator.

2. The apparatus according to claim 1, wherein said calculator is arranged to obtain information that indicates the quantity of the light with which said photoelectric sensor is irradiated and the energy per unit time of the light on the basis of information for controlling the light source.

3. The apparatus according to claim 2, wherein

the light source generates pulse light,
the information includes information that indicates energy per pulse and the number of pulses of the pulse light generated by the light source, and
said calculator is arranged to calculate the quantity of the light with which said photoelectric sensor is irradiated on the basis of the number of pulses and the energy per pulse.

4. The apparatus according to claim 2, wherein
the light source generates pulse light,
the information includes information that indicates an oscillation frequency, oscillation duty, and energy per pulse of the light source, and

said calculator is arranged to calculate the energy per unit time on the basis of the oscillation frequency, oscillation duty, and energy per pulse.

5. The apparatus according to claim 1, wherein said photoelectric sensor includes an integrated exposure amount sensor for monitoring an integrated exposure amount of the substrate during exposure of the substrate.

6. The apparatus according to claim 1, wherein said photoelectric sensor includes a sensor arranged on a stage to move the substrate.

7. The apparatus according to claim 1, wherein said photoelectric sensor includes an illuminance uniformity sensor that measures an illuminance uniformity in an

exposure region.

8. An exposure method of transferring a pattern of a master onto a substrate using light emitted from a light source, comprising:

a calculation step of calculating an output variation amount of a photoelectric sensor arranged at a predetermined position to control exposure of the substrate on the basis of a quantity of light with which the photoelectric sensor is irradiated, energy per unit time of the light, and an output variation characteristic of the photoelectric sensor stored in a memory;

a correction step of correcting an output from the photoelectric sensor on the basis of the output variation amount calculated in the calculation step; and

an exposure step of controlling exposure of the substrate on the basis of the output from the photoelectric sensor corrected in the correction step,

wherein the output variation characteristic stored in the memory includes a characteristic of the output variation amount of the photoelectric sensor with respect to the quantity of the light with which the photoelectric sensor is irradiated.

9. A device manufacturing method comprising:

a step of transferring a pattern of a master onto a substrate using an exposure apparatus as defined in

claim 1; and

a step of developing the substrate.

10. A device manufacturing method comprising:

a step of transferring a pattern of a master onto
a substrate using an exposure method as defined in
claim 8; and

a step of developing the substrate.